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like  $f$  was found to have several advantages. Though not final, these observations show what letters are good, and to a certain extent why they are so; they similarly point out those that need reform, and suggest the direction in which reform should take place, and, quite as important, furnish us with a method of accurately testing the advantages of any system of letters that may be proposed.

One remark should be added. It is, that the legibility of the letter is not altogether an objective factor, but depends on the familiarity of the letters to the person reading them. Just as it has been shown that we are not as likely to name or write one number as another when told to name a number, so the letters are not equally present to our minds; and certain letters will be more often recognized or confused because we more constantly have them in mind. The same process operates against the comparison of a new form of letter with a conventional form; for the new one, not being familiar, is less likely to be recognized because more rarely present to the consciousness of the subject. Similarly, if the subject is informed that a certain letter is no longer to be shown, the very same impression that would have led him to pronounce in favor of the omitted letter will now have a different effect. In the experiments a similar result, due to the omission of a certain letter without the knowledge of the subject, was observed.

NOTES ON HYPNOTISM.<sup>1</sup>—Dr. A. Dichas has made a detailed study of the memory in the hypnotic state, and summarizes his main conclusions somewhat as follows: (1) during the hypnotic sleep the subject remembers the experiences of his waking life as well as of previous hypnoses; (2) in hypnotism there is often an exaltation of the memory, and at times a change in its content, leading to the assumption of a foreign personality; (3) the memory of what has been going on during hypnosis is usually lost, it can often be revived by a simple suggestion, and at times the memory of a suggested hallucination may linger on, and influence the waking condition; (4) the operator can at his will have any of the acts of the hypnotic state remembered or forgotten by making this a part of a suggestion; (5) suggestion seems to be largely explicable as unconscious memory. — Dr. Cybulski has studied the power of hypnotic subjects to hypnotize themselves. He finds that such subjects strongly imagine for a minute or less that the operator commands them to go to sleep, and the desired result ensues. Furthermore, if the subject, on going to sleep, imagines himself controlled by a certain person, then, even though another sent him to sleep, he will be subject to the former, and not to the operator. These observations show the importance of the subjective element in the process of hypnotism, and indicate the method by which the subject unconsciously takes suggestions and acts upon them. — Dr. Berkhan has applied hypnotism to the amelioration of the hearing of the deaf. He tested the hearing of nine deaf boys, and, after hypnotizing them, spoke to them and had various noises made before them. The hearing of four of them was found to be improved, and the improvement is reported as still persisting after eighteen months.

## HEALTH MATTERS.

### Alcoholic Trance.

DR. T. D. CROTHERS of Hartford, Conn., at the recent meeting of the American Medical Association at Cincinnati, read an interesting paper entitled 'Alcoholic Trance: its Medico-Legal Relations.' In discussing this subject he said that the statements of prisoners that they had no memory or recollection of the crime, or the circumstances associated with it, are not often doubtful excuses to avoid punishment. Certain physiological conditions, supported by clinical facts, indicate beyond all question that such statements are often psychological truths.

In somnambulism the person may go about, and do many intricate acts, without consciousness or recollection of them afterwards. In epilepsy distinct periods of unconsciousness occur. Acts unusual and often violent follow, which are never remembered. In mania these memory-blanks are common, and the person is an automaton, acting without any conscious influence of the present.

These are familiar illustrations of some unknown pathological and psychological states of the brain, in which memory is suspended or cut off, and the operations of the mind go on without realization of the surroundings or the influence of experience. This is some obscure form of psychological palsy, in which the person has no recollection of his acts during this time.

From the many clinical studies of cases which have been made, the following general conclusions seem to be sustained:—

1. Alcoholic trance is not an unusual condition in inebriety. The victim is literally an automaton, and acts without memory or consciousness of passing events, — a state which may last from a few minutes to several days.

2. It is distinct from epilepsy, hysteria, or any known forms of mania, and is found associated with some unknown condition following alcoholic poisoning, continuously or at intervals.

3. This condition is probably one of brain-exhaustion, followed by a lowering of consciousness till events are no longer clearly remembered; or a suspension of nerve-force in certain directions, closely allied to paralysis of certain brain-functions: hence there are profound disturbances of brain-centres, and impaired and lessened responsibility.

Dr. Crothers has obtained the records of a large number of trance cases, and his paper gives many of these in detail.

One group of trance cases seems never to do any thing outside a natural, accustomed order of every-day life. Thus, a farmer in this state goes on with his regular work. A physician continues to visit patients, and a railroad-conductor attends to all his usual duties, without any memory of these states. A second group of trance cases seems prominent by unusual acts and thoughts. Thus, a banker in this state left his regular work, and went round delivering tracts in the lower parts of the city. A quiet, retiring man became vociferous, bold, and aggressive. A peaceful man was combative, a truthful man untruthful, and a conscientious, religious man was treacherous and sceptical. Later, these events were perfect blanks in their memory. In a third group of trance cases, some unusual line of conduct seems to grow out of the surroundings unexpectedly, or some old buried thought or conception comes to the surface. Thus, a clergyman insists on riding with the engineer on the engine. A sceptical physician takes part in a prayer-meeting. A merchant goes round threatening to kill an old schoolmaster who punished him in boyhood. A wealthy man has a new will written, disposing of his property differently every time.

In the two last groups criminal cases occur most frequently, although some very remarkable instances have been reported under the first group. In a little work entitled 'Alcoholic Somnambulism,' Professor Jerusky of St. Petersburg mentions the case of a chief of police, who was an inebriate, ordering the arrest and execution of two suspected Jews. His orders were carried out in form, but not in reality. A day later he recovered from his trance state, and had no recollection of the past: he had total amnesia of this act. Another case is cited of an officer who ordered a house burned down, on the supposition that its inmates were preparing to destroy his command. Two days later he awoke with no memory of this event, and could give no reason for the act.

In these cases the somnambulistic act was along the line of his usual work, and performed without the slightest consciousness of its nature or consequences.

The criminal trance cases may be divided into two classes, one of which seems to have no history of criminality previous to the commission of the crime. They are inebriates of active neurotic temperament, who have occupied reputable stations in life, and belong to the better classes. All crime is unusual with them, and apparently grows out of the alcoholic poisoning. The second class are the low neurotics and defectives by birth and education. They have a history of irregularities of life and conduct that seems to prepare the way for criminal acts, and probably are more subject to the trance state because of defective heredity.

All these cases in court are unrecognized. A degree of reasonable conduct up to the time of the crime, and after it, is assumed to be evidence of knowledge of the surroundings and consequences of the act. No fact of inebriety, or statement of no recollection, is thought to lessen in any way the responsibility of the act.

Clinical facts indicate that in all cases of inebriety there is a de-

<sup>1</sup> The reader is referred to an exhaustive review of works on hypnotism in the May number of the *American Journal of Psychology*.

fective brain-power and general perversion of healthy activity; also the door is open for many varied nerve-changes and degrees of brain instability, which always give a doubt to the sanity of the victim. The fact of being an inebriate points to an unsound mind, and more or less incapacity to act or think normally.

When the trance state is determined, the actual responsibility, or cognizance of right or wrong, is suspended: the person is a mental waif, without compass or chart. No evidence of premeditation or apparent judgment in his actions can change this fact. Any special act may spring from some impression laid up in the past, which, when conscious reason is withdrawn, takes on form and semblance. The real condition of the mind is always more or less concealed. Where the case is a periodical inebriate, with distinct free intervals of sanity, a possibility of concealed or masked epilepsy should always be considered. Epilepsy is likely to be present, or to follow from some organic tendency or favoring conditions. When this defence of no memory of the act is made, the case should receive a thorough medical study before any conclusion of responsibility can be reached.

The present treatment of inebriates in courts is nothing less than legal barbarism, founded on error and superstition. The oft-repeated statement that "drunkenness is no excuse for crime," assumes a definition of inebriety that has no support from scientific study and the teaching of facts.

Inebriety in all cases must be regarded as a disease, and the patient forced to use the means of recovery. Like the victim of an infectious disease, his personal responsibility is increased, and the community with him are bound to make the treatment a necessity.

The following propositions sum up many of the facts mentioned:—

1. Inebriety must be recognized as a condition of legal irresponsibility to a certain extent, depending on the character and circumstances of the case, and the general mental integrity displayed.
2. All unusual acts or crime committed by inebriates, either in a state of partial coma or alleged amnesia, which come under legal recognition, should receive thorough study by competent physicians before the legal responsibility can be determined.
3. When the trance state is established beyond doubt, he is both legally and practically irresponsible for his acts during this period, and each should be measured by the facts of its individual history.
4. Inebriety is a disease requiring physical means in the treatment. Society demands of the patient that he use diligence to recover; and, so far as he may neglect this, both himself and community are responsible.
5. It is the duty of the State to provide asylums, and encourage private enterprise to furnish the means and appliances for restoration.
6. Lastly, standing on this borderland, and looking back at the monstrous injustice and legal crime that is daily committed in the punishment of inebriates, who are practically insane, I am convinced that the time has come for a revolution of sentiment and practice, in which both the inebriate and the community must be held responsible, not alone for his acts or the consequences of them, but the causes and conditions which have developed in this way; then the victim will be forced to avail himself of every means for prevention, restoration, and recovery.

**A NEW MILITARY RATION.**—All the garrisons within the limit of the Seventh German Army Corps, we learn from the *Medical Herald*, have now been provided with larger samples of the new article of food which is in future to form the so-called 'iron ration' of the men in the field. It is a peculiar kind of bread, in the shape of small cubes the size of a chocolate-drop, made of fine wheat-bread, strongly spiced, and calculated to keep for a long time. When taken into the mouth, it quickly softens, and is both palatable and nutritious. It is chiefly intended for forced marches, when there is no time for camping and cooking.

**WOUNDS OF THE ABDOMEN.**—Modern surgery, aided by antiseptics, has enabled surgeons to accomplish results which, twenty-five years ago, would have been deemed impossible. This is in no department more marked than in abdominal surgery. While formerly a wound of the abdomen, either from a gunshot or a stab, was considered almost necessarily fatal, at the present day

many lives are saved by an operation, which consists in opening the abdomen, tying every blood-vessel that may have been lacerated, and sewing up any wound which may have been made in the intestines. One of the most difficult parts of the operation consists in finding the intestinal wound. Dr. Senn of Milwaukee proposes to inject per rectum hydrogen-gas, which, he has demonstrated in dogs, finds its way through the entire length of the intestine; and, if an opening exist, the gas will escape, and can be detected.

#### BOOK—REVIEWS.

*Three Introductory Lectures on the Science of Thought.* By F. MAX MÜLLER. Chicago, The Open Court Publ. Co. 12°.

THESE lectures were delivered last year at the Royal Institution in London, and are intended as an introduction to the subject of which they treat, and which the author has dealt with more largely in his work on 'The Science of Thought.' Many writers before Professor Müller had maintained that language is necessary as an instrument of thought, so that we could not think without it; but he goes much further than this, and maintains that language and thought are identical. This means, if taken literally, that the word 'orange,' when I pronounce it, is identical with the idea of an orange which I have in my mind. When stated in this concrete form, the absurdity of the theory is manifest, but Professor Müller endeavors to escape the absurdity by explaining that the word he identifies with the idea is not the word as actually uttered by the voice and heard with the bodily ear, but the word as heard mentally, or in imagination. This, however, does not remove the difficulty; for the word as heard mentally is not a word at all, but only the idea of a word; so that, when stated in this way, the theory means that the idea of a word is identical with the idea of the thing that it stands for.

Such, then, is the absurdity inherent in Professor Müller's theory; nor does he succeed in removing it in any way: on the contrary, he aggravates it by the addition of others. For instance: in his preface he undertakes to tell us how language first arose; and in so doing he gives himself away to start with. According to his theory of thought, we cannot have a concept, or general idea, until we have a word to symbolize it; and he ought, therefore, to account for the origin of language without assuming any concepts whatever. We need not here repeat his whole account of the matter; but he maintains, that, "before we can get a single conceptual word, we have to pass through at least five stages," and the first of these stages is "consciousness of our own repeated acts." Now, this consciousness involves at least four concepts: (1) the concept of an act, since it is not a single act that we are conscious of, but a series of acts; (2) the concept of number, or of many as distinguished from one; (3) the concept of repetition; (4) the concept of causation, since the acts are regarded as our acts, that is, as caused by us. Thus, according to Professor Müller's view of the origin of language, we must have had at least four concepts before we had a single word; and, if this is so, what becomes of the theory that we cannot have concepts without words? As another example of Professor Müller's reasoning, take his remarks about the thinking of animals. Some one had remarked that animals think, to a certain extent at least, and that this proves that thought is not identical with language, to which Professor Müller replies in this curious way: "If we mean by thought that mental function which has its outward sign and embodiment in language, we must say that animals do not think as we think, namely, *in words*. They may think in their own way. . . . But I cannot allow that they think, *if we define thinking by speaking*." A more ludicrous example of reasoning in a circle it would be impossible to find.

Professor Müller's theory is such a one as we often get when a scientific specialist undertakes to deal with the problems of philosophy. Such a man is apt to think that all philosophical problems can be solved by the methods and principles of his science; and the consequence is a great deal of unphilosophical reasoning. Thus, we have had mathematicians who thought that mathematics was the key to philosophy; and in our own time the biologists have put forth similar claims; and now comes Professor Max Müller, maintaining that philosophy is only a problem of language. But